

Michael Oppenheimer

CURRICULUM VITA

(October 2009)

MICHAEL OPPENHEIMER

Albert G. Milbank Professor of Geosciences and International Affairs,
Department of Geosciences and the Woodrow Wilson School of
Public & International Affairs, Princeton University

Director, Program in Science, Technology, and Environmental Policy of the
Woodrow Wilson School, Princeton University

Associated Faculty of: Princeton Environmental Institute
Atmosphere and Ocean Sciences Program
Princeton Institute for International and Regional Studies

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Fields of Specialization

Physics and chemistry of the atmosphere; climate change, ozone depletion, acid deposition and air pollution: their effects on natural systems and society, and public policy responses.

Education

S.B. (Chemistry) M.I.T., 1966

Ph.D. (Chemical Physics) University of Chicago, 1970

Positions

1966-67 Teaching Assistant, University of Chicago

1971-73 Research Fellow, Harvard College Observatory

1971-81 Physicist, Harvard-Smithsonian Center for Astrophysics

1978-79 Visiting Astronomer, University of California, Santa Cruz

Michael Oppenheimer

| | |
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| 1981-96 | Senior Scientist, Environmental Defense |
| 1995 -2002 | Manager, Global / Regional Air Program, Environmental Defense |
| 1996 -2002 | Chief Scientist, Environmental Defense |
| 2002- | Professor of Geosciences and International Affairs, Princeton University |
| 2008-2013 | Visiting Professor of Law, NYU School of Law |

Honors, Awards

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|-----------|---|
| 1969 | Danforth Tutor, University of Chicago |
| 1969-70 | Union Carbide Fellow, University of Chicago |
| 1978-79 | John Simon Guggenheim Memorial Foundation Fellow |
| 1978-79 | Morrison Fellow, University of California, Santa Cruz |
| 1989 | The Henry Draper Award of the Hudson River Fishermen's Association |
| 1989-2001 | Streisand Chair in Environmental Studies |
| 2000 | League of Conservation Voters, Environmental Leadership Award for Advancing the Public Understanding of the Science of Climate Change |
| 2001 | Environmental Action Coalition Green Star Award |
| 2005-2006 | Russell Sage Foundation Visiting Scholar |
| 2007 | New Species Award, African Rainforest Conservancy |
| 2007 | Participant in the Intergovernmental Panel on Climate Change, which won the Nobel Peace Prize in 2007 |
| 2009-10 | Russell Sage Foundation Associate Scholar |

Committees, Boards, and Panels

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|---------|---|
| 1982-90 | Board of Directors, National Clean Air Committee |
| 1982 | E.P.A. Lead Criteria Review Committee |
| 1982-84 | Acid Rain Advisory Committee, N.Y. State Department of Environmental Conservation |
| 1982-86 | Board of Directors, OSHA-Environmental Network |
| 1983 | Ad Hoc Committee to Review the National Acid Precipitation Assessment Program, White House Council on Environmental Quality |
| 1985-90 | Hudson River Panel, Hudson River Foundation |
| 1986-88 | Board of Directors, Environmental Planning Lobby |
| 1987-88 | E.P.A. Visibility Committee |
| 1988-89 | Panel on Greenhouse Warming, World Resources Institute |
| 1988- | Advisory Board, Pace University Center for Environmental Legal Studies |
| 1989-93 | NASA Advisory Committee on the Atmospheric Effects of Stratospheric Aircraft |
| 1989-97 | Chairman, Science Advisory Panel, Climate Change Exhibition, |

Michael Oppenheimer

- American Museum of Natural History
- 1990-96 Advisory Board, Environmental Media Association
- 1991-02 Board of Analysts, "Greenwire"
- 1991-92 National Steering Committee, Florida Global Warming Education Project, American Horizons
- 1991-94 Environmental Advisory Committee to New York Governor Mario Cuomo
- 1992-94 Visiting Committee, Cornell Center for the Environment, Cornell University
- 1993-95 NASA Advisory Committee on the Atmospheric Effects of Aviation
- 1994 Interim Advisory Committee, Princeton Environmental Institute, Princeton University
- 1995-99 National Academy of Sciences/National Research Council, Panel on the Atmospheric Effects of Aviation
- 1996 Contributing author, Intergovernmental Panel on Climate Change, Second Assessment Report
- 1997-98 Technical Advisory Panel, H. John Heinz III Center
- 1998 Global Change Steering Committee, H. John Heinz III Center
- 1998-99 Scientific Advisory Board, Riverkeeper
- 1999-02 Advisory Board, Earth and Environmental Studies Program, Montclair State College
- 2000-02 Executive Campaign Cabinet, Earth System Science Research Center, University of California, Irvine
- 2000-02 Advisory Council, Center for Environmental Policy, Bard College
- 2001 Lead author, Intergovernmental Panel on Climate Change, Third Assessment Report
- 2001-05 Environment Jury, Heinz Awards, Heinz Foundation
- 2002- Science Advisor, Environmental Defense
- 2003- Trustee, Tri-State Transportation Coalition
- 2003-06 Steering Committee, Aldo Leopold Leadership Program
- 2003- Executive Committee, Cooperative Institute for Climate Science, Princeton University and NOAA Geophysical Fluid Dynamics Laboratory
- 2003-07 Science and Technology Council, Cummins, Inc.
- 2004-07 Lead Author, Intergovernmental Panel on Climate Change, Fourth Assessment Report
- 2005-06 Panel on Climate Variability and Change, National Research Council, National Academy of Sciences
- 2005-11 Executive Committee, Environmental Studies Program, Princeton University
- 2006-12 Executive Committee, Center for Information Technology Policy, Princeton University
- 2006-8 Chair, steering committee for Arctic Expedition for Climate

Michael Oppenheimer

- Action (Lindblad Expeditions, Aspen Institute, National Geographic Society)
- 2007- Advisory Board, African Rainforest Conservancy
- 2007-09 Panel on Alternative Liquid Transportation Fuels, National Academy of Sciences
- 2007-8 Co-curator, *Climate Change: The threat to life and our energy future*, American Museum of Natural History
- 2008-12 Executive Committee, Program in Sustainable Energy, Princeton University
- 2008- Board of Directors, Climate Central
- 2008 Advisory Board to NJDEP commissioner on establishing an SAB
- 2009-11 Coordinating Lead Author, Intergovernmental Panel on Climate Change, Special Report on *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*

Membership in Professional Societies

American Association for the Advancement of Science
American Geophysical Union
American Meteorological Society
American Physical Society
International Glaciological Society

Publications

See bibliography, next page.

BIBLIOGRAPHY

Articles in Professional Journals

- 1971 Ultraviolet spectra of alkali halides in inert matrices (with R. S. Berry).
J. Chem. Phys., **54**, 5058.
- 1972 Collision matrix elements near a pseudocrossing of potential energy curves.

Michael Oppenheimer

- J. Chem. Phys.*, **57**, 3899.
- 1972 Non-resonant charge capture: $\text{Na}^+ + \text{Li} = \text{Na} + \text{Li}^+$ (with C. Bottcher).
J. Phys. B., **5**, 492.
- 1972 Eigenvalues of the $2p3p^3P$ and $2p3d^{1,3}D$ bound states of the helium isoelectronic sequence (with H. Doyle and G. W. F. Drake). *Phys. Rev.*, **A5**, 26.
- 1972 The charge transfer spectrum of $(\text{LiNa})^+$ (with C. Bottcher and A. Dalgarno).
Chem. Phys. Lett., **15**, 24.
- 1972 The calculation of photoabsorption processes in helium (with A. Dalgarno and H. T. Doyle). *Phys. Rev. Lett.*, **29**, 1051.
- 1973 Chemiionization in interstellar clouds (with R. S. Berry and A. Dalgarno). *Ap. J. Lett.*, **183**, L21.
- 1973 The formation of formaldehyde in interstellar clouds (with A. Dalgarno and J. Black). *Nature*, **245**, 100.
- 1974 The chemistry of sulphur in interstellar clouds (with A. Dalgarno). *Ap. J.*, **187**, 231.
- 1974 The fractional ionization in dense interstellar clouds (with A. Dalgarno). *Ap. J.*, **192**, 29.
- 1974 Chemical heating in diffuse interstellar clouds (with A. Dalgarno). *Ap. J.*, **192**, 597.
- 1974 Configuration mixing effects on molecular dipole transition moments (with K. Docken). *Chem. Phys. Lett.*, **29**, 349.
- 1974 Hydrogen chloride in dense interstellar clouds (with A. Dalgarno, T. de Jong, and J. H. Black). *Ap. J. Lett.*, **192**, L37.
- 1975 The formation of CO and thermal balance in interstellar clouds (with A. Dalgarno). *Ap. J.*, **200**, 419.
- 1975 Comets and interstellar masers. *Nature*, **254**, 677.
- 1975 Gas phase chemistry in comets. *Ap. J.*, **196**, 251.
- 1975 A bound state expansion method for calculating resonance and non-resonance

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- contributions to continuum processes: Theoretical development and application to the photoionization of helium (with H. Doyle and A. Dalgarno). *Phys. Rev.*, **A11**, 909.
- 1975 The formation of CH^+ in interstellar clouds (with A. Dalgarno and J. H. Black). *Ap. J.*, **199**, 633.
- 1975 Metastable ^2P oxygen ions in the daytime thermosphere (with several authors). *J. Geophys. Res.*, **80**, 1026.
- 1975 A bound state method for phase shifts in elastic scattering of electrons from atoms and ions (with A. Dalgarno and H. Doyle). *Chem. Phys. Lett.*, **32**, 6.
- 1976 An improved bound state method for calculating resonance eigenvectors and properties (with H. Doyle). *Phys. Rev.*, **A13**, 665.
- 1976 Recombination of NO^+ in the ionosphere (with several authors). *Geophys. Res. Lett.*, **3**, 209.
- 1976 Molecular oxygen abundances in the thermosphere from the chemistry of the O_2^+ ion based on Atmosphere Explorer-C composition measurements (with A. Dalgarno and H. C. Brinton). *J. Geophys. Res.*, **81**, 4678.
- 1976 Ion chemistry of N_2^+ and the solar ultraviolet flux in the thermosphere (with A. Dalgarno and H. C. Brinton). *J. Geophys. Res.*, **81**, 3762.
- 1977 Isentropic instabilities in the interstellar gas. *Ap. J.*, **211**, 400.
- 1977 Association ionization and interstellar TiO and TiO^+ (with A. Dalgarno). *Ap. J.*, **212**, 683.
- 1977 Daytime chemistry of NO^+ from Atmosphere Explorer-C measurements (with A. Dalgarno, F. P. Trebino, L. H. Brace, H. C. Brinton and J. H. Hoffman). *J. Geophys. Res.*, **82**, 191.
- 1977 Indirect determinations of molecular oxygen densities in the daytime thermosphere from Atmosphere Explorer-C composition measurements (with K. Kirby-Docken). *J. Geophys. Res.*, **82**, 3503.
- 1977 Comparison of measured and calculated thermospheric molecular oxygen (with W. E. Potter, D. C. Kayser, H. C. Brinton and L. H. Brace). *J. Geophys. Res.*, **82**, 5243.
- 1977 Ion photochemistry of the thermosphere from Atmosphere Explorer-C measurements (with E. R. Constantinides, K. Kirby-Docken, G. A. Victor, A.

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- Dalgarno and J. H. Hoffman). *J. Geophys. Res.*, **82**, 5485.
- 1978 An analysis of the coma of Comet Bennett 1970 II. *Ap. J.*, **225**, 1083.
- 1978 The EUV flux inferred from AE-C He⁺ abundances (with S. Babeu, J. H. Hoffman and E. Breig). *Geophys. Res. Lett.*, **5**, 773.
- 1978 Evidence for shock chemistry in Orion (with C. Lada and T. W. Harquist). *Ap. J. Lett.*, **226**, L153.
- 1979 The effect of cosmic ray screening upon the stability of interstellar clouds (with B. Elmegreen and T. W. Hartquist). *Astron. Astrophys.*, **75**, 137.
- 1979 Photoionization and photoabsorption cross sections of thermospheric species: He, O, N₂, and O₂ (with K. Kirby, S. Babeu, E. R. Constantinides and G. A. Victor). *Atomic Data and Nuclear Data Tables*, **23**, 63.
- 1980 Molecular diagnostics of interstellar shocks (with T. W. Hartquist and A. Dalgarno). *Ap. J.*, **236**, 182.
- 1980 Sodium D-line emission in Comet West (1975n) and the sodium source in comets. *Ap. J.*, **240**, 923.
- 1980 Chemical reactions and the nature of comets. *Accounts of Chemical Research*, **13**, 378.
- 1980 The effect of solar cycle ultraviolet flux variations on cometary gas (with C. J. Downey). *Ap. J. Lett.*, **241**, L123.
- 1981 EUV flux variations during solar cycle 21 from AE-E He⁺ abundances (with S. Babeu and H. C. Brinton). *J. Geophys. Res.*, **86**, 825.
- 1982 Ultraviolet absorption studies of H₂O and other species in Comet Halley with space telescope (with P. L. Smith and J. H. Black). *Icarus*, **47**, 441.
- 1982 Sulfur emissions. *Science (Letters)*, **217**, 586.
- 1983 The relationship of sulfur emissions to sulfate in precipitation. *Atmos. Environment*, **17**, 451.
- 1983 The relationship of sulfur emissions to sulfate in precipitation II. Gas phase processes. *Atmos. Environment*, **17**, 1489.
- 1984 The relationship of sulfur emissions to sulfate in precipitation III. Subregional budget analysis. *Atmos. Environment*, **18**, 403.

Michael Oppenheimer

- 1985 An analysis of the sulfur budget and interstate sulfur transport for Colorado. *Atmos. Environment*, **19**, 1439.
- 1985 Acid deposition (with J. N. Galloway, G. E. Likens and S. A. Norton). *Science (Letters)*, **227**, 1154.
- 1985 Acid deposition, smelter emissions, and the linearity issue in the Western United States (with C. Epstein and R. Yuhnke). *Science*, **229**, 859.
- 1986 Acid deposition in the Western United States (with C. Epstein and R. Yuhnke). *Science (Letters)*, **233**, 10.
- 1986 Empirical relation between sulfur dioxide emissions and acid deposition derived from monthly data (with C. Epstein). *Nature*, **323**, 245.
- 1987 Stratospheric sulphate production and the photochemistry of the Antarctic circumpolar vortex. *Nature*, **328**, 702.
- 1988 Restoration of the Chesapeake Bay: A Multi-State Institutional Challenge (with J. T. B. Tripp). *Maryland Law Review*, **47**, 425.
- 1989 Climate change and environmental pollution: physical and biological interactions. *Climatic Change*, **15**, 255.
- 1991 Atmospheric nitrate deposition and the Chesapeake Bay estuary (with D. C. Fisher). *Ambio*, **20**, 102.
- 1991 Carbon dioxide and temperature (with J. B. Marston, R. M. Fujita and S. R. Gaffin). *Nature (Scientific Correspondence)*, **349**, 573.
- 1993 Pondering greenhouse policy. *Science (Letters)*, **259**, 1382.
- 1994 Reservoir timescales for anthropogenic CO₂ in the atmosphere (with B. C. O'Neill, S. R. Gaffin, and F. N. Tubiello). *Tellus*, **46B**, 378.
- 1995 Impulse-response functions and anthropogenic CO₂ (with F. N. Tubiello). *J. Geophysical Res. Lett.*, **22**, 413.
- 1995 Comment on "The lifetime of excess atmospheric carbon dioxide" by Berrien Moore III and B. H. Braswell (with S. R. Gaffin and B. C. O'Neill). *Global Biogeochemical Cycles*, **9**, 167.
- 1997 Measuring time in the greenhouse: an editorial essay (with B. C. O'Neill and S. R. Gaffin). *Climatic Change*, **37**, 491.

- 1998 Global warming and the stability of the West Antarctic ice sheet. *Nature*, **393**, 325.
- 1998 Long-term scenarios for aviation: demand and emissions of CO₂ and NO_x (with A. Vedantham). *J. Energy Policy* **26**, 625.
- 2000 Counting the cost of deforestation (with R. Bonnie, S. Schwartzman, and J. Bloomfield). Perspectives: Environmental Policy, *Science* **288**, 1763-1764.
- 2002 Book Review: *The Carbon War: Global Warming and the End of the Oil Era*. *Climatic Change*, **54**, 497-505
- 2002 Dangerous climate impacts and the Kyoto Protocol (with B.C. O'Neill). *Science* **296**, 1971-2.
- 2003 On past temperatures and anomalous late-20th century warmth (with 12 co-authors). *Eos* **84**, 256-8.
- 2003 Response (to comments on, On past temperatures and anomalous late-20th century warmth, with 12 co-authors). *Eos* **84**, 473-4.
- 2003 Book Review: *Atmospheric Pollution: History, Science, and Regulation*. *Physics Today* **56**, 65-66.
- 2004 The West Antarctic Ice Sheet and Long Term Climate Policy (with R.B. Alley). *Climatic Change*, **64**, 1-10.
- 2004 Climate Change Impacts Sensitive to Path to Stabilization (with B.C. O'Neill). *Proc. Nat. Acad. Sci.* **101**, 16411–16416, doi_10.1073_pnas.0405522101.
- 2004 Book Review: *The Discovery of Global Warming*. *J. Environmental Hist.*, **9**, 327-8.
- 2004 The influence of climate on in-stream removal of nitrogen (with S.D. Donner and C.J. Kucharik). *Geophys. Res. Letters*, **31**, L20509, doi:10.1029/2004GL020477.
- 2005 Ice Sheets, Global Warming, and Article 2 of the UNFCCC (with R.B. Alley). *Climatic Change* **68**, 257-267.
- 2005 Global Assessment of Coral Bleaching and Required Rates of Adaptation under Climate Change (with S.D. Donner, W.J. Skirving, C.M. Little, and O. Hoegh-Guldberg). *Global Change Biology*, **11**, 1–15, doi: 10.1111/j.1365-2486.2005.01073.x

Michael Oppenheimer

- 2005 Article 2 of the UNFCCC: Historical Origins, Recent Interpretations (with A. Petsonk). *Climatic Change* **73**, 195-226.
- 2005 Attribution of Regional Radiative Forcing Due to Tropospheric Ozone: A Step Toward Climate Credit for Reductions in Emissions of Ozone Precursors (with V. Naik, D. Mauzerall, L. Horowitz, D. Schwarzkopf, V. Ramaswamy). *J. Geophys. Res.*, **110**, D24306, oi:10.1029/2005JD005908
- 2005 Avoiding Dangerous Anthropogenic Interference with the Climate System (with K. Keller, M. Hall, S.-R. Kim, and D. F. Bradford). *Climatic Change* **73**, 227-238
- 2005 Defining Dangerous Anthropogenic Interference: The Role of Science, The Limits of Science. *Risk Analysis* **25**, 1-9
- 2005 Interim Targets and the Climate Treaty Regime (with Brian C. O'Neill, & Annie Petsonk). *Climate Policy* **5**, 639-645.
- 2006 Global Warming: The Psychology of Long Term Risk (with A. Todorov). *Climatic Change*, **77**, 1-6, DOI: 10.1007/s10584-006-9086-6.
- 2006 Science and Environmental Policy: The Role of Nongovernmental Organizations, *Social Research*, **73**, 881-90.
- 2006 Coral Reefs Reduce Tsunami Impact in Model Simulations (with C. Kunkel and R. Hallberg). *Geophys. Res. Lett.*, **33**, L23612, doi:10.1029/2006GL027892.
- 2006 Model-based Assessment of the Role of Human-induced Climate Change in the 2005 Caribbean Coral Bleaching Event (with S.D. Donner and T.R. Knutson). *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.0610122104
- 2006 Learning and Climate Change (with many authors), *Climate Policy* **6**, 585-589.
- 2007 A "Manhattan Project" for Climate Change? (with C-J Yang). *Climatic Change*, **80**, 199-204, 10.1007/s10584-006-9202-7.
- 2007 On the Sensitivity of Radiative Forcing from Biomass Burning Aerosols and Ozone to Location of Emissions (with V.Naik, D. L. Mauzerall, L. W. Horowitz, M.D Schwarzkopf, V.Ramaswamy). *Geophys. Res. Letters*, **34**, L03818, doi:10.1029/2006GL028149.
- 2007 Carbon Trading over Taxes (with B. Chameides), *Science*, **315**, 1670.
- 2007 The regrets of procrastination in climate policy (with K. Keller, A. Robinson, D.

Michael Oppenheimer

- F. Bradford), *Environmental Research Letters*, **2**, 024004 (4pp)
doi:10.1088/1748-9326/2/2/024004 (2007).
- 2007 The Limits of Consensus (with B.C O'Neill, M. Webster, and S. Agrawala),
Science **317**, 1505-6
- 2007 The Economics of the Thermohaline Circulation – A Problem with Multiple
Thresholds of Unknown Locations (with E. Nævdal). *Resource and Energy
Economics* 29, 262-283.
- 2007 Towards a New Generation of Ice Sheet Models (with many authors), *Eos* **88**,
578-9
- 2008 Learning about Ozone Depletion (with P.J. Crutzen), *Climatic
Change* **89**, 143-154 DOI 10.1007/s10584-008-9400-6
- 2008 The Potential Impacts of Sea Level Rise on the Coastal Region of New Jersey,
USA (with M.P. Cooper and M.D. Beevers), *Climatic Change* **90**, 475–492,
DOI 10.1007/s10584-008-9422-0
- 2008 Atmospheric Stabilization and the Timing of Carbon Mitigation (with
B. K. Mignone, R. H. Socolow, and J. L. Sarmiento),
Climatic Change **88**, 251-265 DOI 10.1007/s10584-007-9391-8
- 2008 Book Review: An outspoken scientist, *Nature Reports Climate Change*,
Published online: 16 January 2008 | doi:10.1038/climate.2008.3
- 2008 A Closer Look at the IPCC Report (with B.C O'Neill, M. Webster, S.
Agrawala), *Science (Letters)* **319**, 409-10
- 2008 The Boundaries of the Thinkable: Environmentalism in the Early
Twenty-First Century (with P. Tetlock), *Dedalus* **137**, 59–70.
- 2008 A Physical Science Perspective on Disaster: Through the prism of global
warming, *Social Research* **75**, 659-668.
- 2008 Negative Learning (with B.C. O'Neill and M. Webster),
Climatic Change **89**, 155-172 DOI 10.1007/s10584-008-9405-1
- 2009 Urbanization, Climate Change and Flood Policy in the United States
A.A. Ntelekos, J.A. Smith, and A.J. Miller, submitted to
Climatic Change

Michael Oppenheimer

- 2009 Climate Change and Plant Invasions: Restoration Opportunities Ahead? (with BA Bradley and DS Wilcove), *Global Change Biology*, **15**, 1511–1521, doi: 10.1111/j.1365-2486.2008.01824.x
- 2009 Assessing dangerous climate change through an update of the Intergovernmental Panel on Climate Change (IPCC) ‘‘reasons for concern’’ (with many authors), *PNAS* (www.pnas.org_cgi_doi_10.1073_pnas.0812355106)
- 2009 Nitrogen cycling and feedbacks in a global dynamic land model (with S. Gerber, L.O. Hedin, S.W. Pacala, and E. Shevliakova), *Global Biogeochemical Cycles*, in press
- 2009 Climate Change Increases Risk of Plant Invasion in the Eastern United States (with B. Bradley and D. Wilcove), *Biological Invasions*, in press
- 2009 Ice shelf morphology and the efficiency of basal melting (with A Gnanadesikan And CM Little), *J. Glaciology*, in press.
- 2009 Global and Local Sea Level During the Last Interglacial: A Probabilistic Assessment (with RE Kopp, FJ Simons, AC Maloof), submitted to *Nature*
- 2009 Toward ethical norms and institutions for geo-engineering research (with D. Morrow and R. Kopp), *Env. Research Lett.*, in press
- 2009 Addressing climate change, naturally (with WR Turner and DS Wilcove), submitted to *Nature*
- 2009 Fixing a critical climate accounting error (with many other authors), *Science*, in press

(Michael Oppenheimer)

Book Chapters

- 1986 The Implications of Health and Environmental Effects for Policy (with D. J. Dudek), in *Effects of Changes in Stratospheric Ozone and Global Climate*, Vol. 1, U.S. E.P.A.
- 1989 Vulnerable Ecosystems, in *Ozone Depletion: Health and Environmental Consequences* (John Wiley & Sons, Chichester, UK) Ch. 9.
- 1990 The Atmosphere and the Future of the Biosphere: Points of Interactive Disturbance, in *The Earth in Transition: Patterns and Processes of Biotic Impoverishment* (Cambridge University Press, New York) p.111.
- 1996 *Climate Change 1995: The Science of Climate Change* (contributing author with many others). Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change, Chapter 8, “Detection of Climate Change and Attribution of Causes,”(Cambridge University Press, Cambridge, UK).
- 2001 *Climate Change 2001: The Science of Climate Change* (Contributing author with many others). Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Chapter 11, “Changes in Sea Level,” (Cambridge University Press, Cambridge, UK).
- 2001 *Climate Change 2001: The Science of Climate Change* (Lead author with many others). Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Technical Summary and Summary for Policymakers (Cambridge University Press, Cambridge, UK).
- 2003 Global Warming: The Intersection of Long-Term Goals and Near-Term Policy (with A. Peterson), in Michel, D. (ed.), *Climate Policy for the 21st Century: Meeting the Long-Term Challenge of Global Warming*, Center for Transatlantic Relations, Johns Hopkins University, Washington, pp.79-112.
- 2005 Emissions Pathways to Avoid Dangerous Climate Change: A Transatlantic View (with C. Jaeger) in *Options for Future Climate Policy: Transatlantic Perspectives*, German Institute for International and Security Affairs, Berlin.
- 2007 Climate Variability and Change (Contributing author with many others), in *Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond* (National Academy Press, Washington, DC), Ch.9.
- 2007 Assessing Key Vulnerabilities and the Risks from Climate Change (with several

(Michael Oppenheimer)

- authors), in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 779-810.
- 2007 Technical Summary. *Climate Change 2007: Impacts, Adaptation and Vulnerability (with many authors). Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 23-78.
- 2007 IPCC, 2007: Summary for Policymakers (with many authors). In: *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 7-22.
- 2007 How Warm is Too Warm: Avoiding Dangerous Climate Change, in International Science School lecture series, University of Sydney, Australia.
- 2007 What is the economic value of information about climate thresholds? (with several authors), in: *Human-induced Climate Change: An Interdisciplinary Assessment*, ed. Michael Schlesinger, H. Kheshgi, J. Smith, F. de la Chesnaye, J. M. Reilly, T. Wilson and C. Kolstad. Published by Cambridge University Press. Cambridge University Press 2007.
- 2009 “Understanding the Causes and Implications of Climate Change” in *Climate Finance: Regulatory and Funding Strategies for Climate Change and Global Development* R Stewart, B Kingsbury, B Rudyk, eds, NYU press, a www.climatefinance.org.

Books, Journal Volumes

- 1989 Guest Editor, *Climatic Change* **vol. 15** Special Issue. *Greenhouse Gas Emissions: Environmental Consequences and Policy Responses*.
- 1990 *Dead Heat: The Race Against The Greenhouse Effect* (with R. H. Boyle). (Basic Books, New York).
- 2006 Guest Editor, *Climatic Change* **vol. 77**, Nos.1-2 Special Issue: Global Warming: The Psychology of Long Term Risk.

(Michael Oppenheimer)

Other Publications

- 1978 What are comets made of? *Natural History*, **87**, 42.
- 1980 The comet syndrome (with L. Haimson). *Natural History*, **89**, 54.
- 1984 Reducing Acid Rain: The Scientific Basis for an Acid Rain Control Policy. Environmental Defense Fund, New York (also appeared as “Reducing Acid Rain in Eastern North America: The Scientific Basis for an Acid Rain Control Policy” in *Journal of Law Reform, University of Michigan*, **19**, 989 (1986).
- 1984 Safeguarding Acid-Sensitive Waters in the Intermountain West (with R. Yuhnke). Environmental Defense Fund, New York.
- 1985 Is There Scientific Consensus on Acid Rain? Report of Ad Hoc Committee on Acid Rain: Science and Policy.
- 1986 Thresholds for Acidification: A Framework for Policy and Research. Environmental Defense Fund, New York.
- 1986 New York City’s Water Supply: Acid Deposition, Inorganic Pollution, and the Catskill Reservoirs (with J. Ceraso, C. B. Epstein, and S. L. Clark). Environmental Defense Fund, New York.
- 1988 Global Lessons From The Ozone Hole. Environmental Defense Fund, New York.
- 1988 Polluted Coastal Waters: The Role of Acid Rain (with D. Fisher, J. Ceraso, and Matthew). Environmental Defense Fund, New York.
- 1988 Contributor to Developing Policies For Responding To Climatic Change, World Meteorological Organization.
- 1994 Aircraft Emissions and the Global Atmosphere: Long-term Scenarios (with A. Vedantham.) Environmental Defense Fund, New York.
- 1995 The Way Things *Really* Are: Debunking Rush Limbaugh on the Environment (with L. Haimson and D. Wilcove). Environmental Defense Fund, New York.
- 1995 Context, Connection, and Opportunity in Environmental Problem Solving. *Environment Magazine*, **10**.
- 1996 A Moment of Truth: Correcting the Scientific Errors in Gregg Easterbrook’s A Moment on the Earth, Part One (with D. S. Wilcove and M. J. Bean). Environmental Defense Fund, New York.

(Michael Oppenheimer)

- 1996 A Moment of Truth: Correcting More Errors in Gregg Easterbrook's A Moment on the Earth, Part Two (with L. Blum, et al.). Environmental Defense Fund, New York.
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